UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
CINCINNATI PROCUREMENT OPERATIONS DIVISION
CINCINNATI, OHIO 45268

SUBJECT: Request for Task Order Proposal, Tracking Number PR-R5-18-00467

FROM: Angela Lower
Contracting Officer

TO: Multiple Award Contract Holders under TSAWP II

Attached is request for task order proposal for the subject tracking number which is issued for competition for the project entitled, "Soil and Water Assessment Tool (SWAT) Modeling for the Northeast Lakeshore TMDL".

The government requests you prepare a proposal (price and technical) for the task order. Request the proposals be submitted to Angela Lower at **lower.angela@epa.gov** by **Tuesday, September 11, 2018 at Noon EST**. The technical proposal is limited to 15 pages. A firm fixed price to be paid shall be provided in the contractor's cover letter to the Task Order Proposal. The price proposals shall break out the price per task and provide a total overall price for the entire effort. Proposals shall also include the required conflict of interest certification.

The following documents provided for this solicitation will become part of the Task Order Award:

- Performance Work Statement
- Task Order Clauses

Award of a **Firm Fixed Price** task order will result. The period of performance for this Task Order is anticipated to be 2 years in length and the anticipated start date is Oct 1, 2018. Please see attached technical evaluation criteria which will be used to evaluate the offer. Award will be made on the Best Value Tradeoff basis, where technical quality is equally important as price.

Any questions should be directed to Angela Lower within five days of issuance of this Solicitation.

Angela Lower
Contracting Officer

Cc:
Paul Proto, Task Order Contracting Officer's Representative
Donna Keclik, Alternate Task Order Contracting Officer's Representative
Lisa Mitchell-Flinn, Contract Specialist

Attachments:
Technical Evaluation Criteria
PWS
Task Order Clauses

PERFORMANCE WORK STATEMENT (PWS)

A. TITLE: Soil and Water Assessment Tool (SWAT) Modeling for the Northeast Lakeshore TMDL

B. PERIOD OF PERFORMANCE: Task Order Award through September 30, 2020.

C. BACKGROUND

U.S. EPA and the Wisconsin Department of Natural Resources (WDNR) have identified nearshore subwatersheds which drain to Lake Michigan in Northeastern Wisconsin as a priority area for restoration efforts. EPA's efforts under the Great Lakes Restoration Initiative (GLRI) are aimed at protecting and restoring the Great Lakes ecosystem, especially those actions which reduce runoff that contributes to algal blooms and which restore habitat to protect native species. WDNR agrees with these goals and has begun initial water quality monitoring efforts in ten subwatersheds in northeastern Wisconsin which span eight counties; Ozaukee, Sheboygan, Fond du Lac, Manitowoc, Calumet, Kewaunee, Brown and Door. The spatial extent of the subwatersheds addressed by WDNR efforts is found in Figure 1at the end of this Performance Work Statement (PWS).

In addition to ongoing water quality monitoring, WDNR has completed Clean Water Act (CWA) 303(d) assessments in these ten subwatersheds (i.e., the watersheds of Wisconsin's Northeast Lakeshore Total Maximum Daily Load (TMDL)) and identified various surface waters which were not meeting state water quality standards (WQS). Section 303(d) of the CWA and the EPA's Water Quality Planning and Management Regulations (Title 40 of the Code of Federal Regulations [CFR], Part 130) require states to develop Total Maximum Daily Loads for water bodies that are not meeting water quality standards. The TMDL process establishes the allowable loadings of pollutants for a water body based on the relationship between pollution sources and in-stream water quality conditions. TMDLs provide a basis for determining the pollutant reductions necessary from both point and nonpoint sources to restore and maintain the quality of water resources.

WDNR is in the early stages of its state led process for developing TMDLs for subwatersheds in the Northeastern Lakeshore area for nutrient (total Phosphorus (TP)) and sediment (total suspended solids, (TSS)) impairments. These impaired segments include waters which drain directly to Lake Michigan and headwater segments (See Figure 2 of this PWS which highlights TP impaired segments in the Northeast Lakeshore subwatersheds). WDNR has targeted select TP and sediment impaired waters in ten subwatersheds in Northeastern Wisconsin for its Northeastern Lakeshore TMDL project (i.e., NE Lakeshore TMDL).

Nearshore waters in Lake Michigan and the tributaries which drain to Lake Michigan are impacted by sediment borne nutrient loads from terrestrial sources. Phosphorus inputs have been identified as primary nutrient contributors to decreased water quality in these waters. An overabundance of nutrients can trigger excessive algal growth (or eutrophication) which results in reduced sunlight, loss of aquatic habitat, degraded biological communities and a decrease in dissolved oxygen (DO) in the water column. Excess nutrients may come from a wide range of point and nonpoint sources including urban stormwater runoff, livestock operations, stormwater runoff from agricultural land (e.g., row crop land), atmospheric deposition, leaking septic systems and soil erosion.

Degradations in aquatic habitats or water quality (e.g., low DO) can negatively impact aquatic life use. Increased turbidity, brought on by elevated levels of nutrients or sediments within the water column, can reduce DO in the water column, and cause large shifts in DO and pH throughout the day. Shifting chemical conditions within the water column may stress aquatic biota (fish and macroinvertebrate species). In some instances, degradations in aquatic habitats or water quality have reduced fish populations or altered fish communities from those communities supporting sport fish species to communities which support more tolerant rough fish species.

Water quality in northeastern Wisconsin is also impacted by excess sediment in surface waters. Excess siltation and flow alterations of natural stream environments may impact aquatic life by disrupting natural habitats for fish and macroinvertebrate species. Excess sediment can fill stream pools, embed substrates, and reduce connectivity between different stream habitats. The result is a decline in habitat types that in healthy streams support diverse fish and macroinvertebrate communities. Excess sediment can also reduce spawning and rearing habitats for certain fish species, can clog the gills of fish and negatively impact fish health.

Flow alterations in areas of northeastern Wisconsin due to drainage improvements on or near agricultural lands, have in some instances resulted in increased peak flows. Higher peak flows in stream environments, which typically occur during storm events, can carry increased sediment loads to streams and erode streambanks. Deposited fine sediments transported during storm events may damage substrates leading to habitat loss. Similar to the nutrient effects discussed above, this may result in reduced fish populations or altered fish communities from those communities supporting sport fish species to communities which support rough fish species.

D. SCOPE OF WORK

The NE Lakeshore TMDLs address areas which drain to Lake Michigan in eight counties in northeastern Wisconsin (Figure 1 of this PWS). Northeastern Wisconsin, like many nearshore areas to the Great Lakes, faces impaired water quality conditions, including low DO conditions in surface waters, algal blooms, degraded habitats and impacted recreational use availability. Surface waters and the nearshore areas of Lake Michigan in northeastern Wisconsin are an important recreational, industrial, and natural resource to the State of Wisconsin therefore, the State and local stakeholders are motivated to improve water quality and restore usability of surface waters in these areas.

WDNR has elected to develop TMDLs for select waters in northeastern Wisconsin. The TMDL development process characterizes water quality, describes the problem and sources which are exacerbating the degraded water quality conditions, estimates pollutant loads from the various point and nonpoint sources, define(s) the allowable point and nonpoint source loads necessary to support beneficial uses and attain WQS, allocates pollutant loads among different sources and describes implementation efforts needed to improve water quality on the local level.

Prior to allocating pollutant loadings to point and nonpoint sources one must quantify both the point and nonpoint source contributions to the watershed. Point source allocation information is typically gathered from consulting with individual facilities and or utilizing state and federal point source reporting resources. Point sources are characterized within the TMDL equation as wasteload allocations (WLAs). Nonpoint source loading (i.e., load allocations (LA) within the TMDL equation) is sometimes estimated with the assistance of hydrologic modeling efforts. WDNR has used the Soil and Water Assessment Tool (SWAT) model in previous TMDL projects to estimate pollutant loads entering water bodies originating from various land uses (e.g., forest, wetland, pasture (‘edge of field’

estimates), cropland (edge of field estimates), urban etc.) which in the context of a TMDL are attributed to nonpoint source contributions.

The purpose of this Task Order (TO) is to assist WDNR in the development of a SWAT model(s) for the subwatersheds addressed in the NE Lakeshore TMDL (see Figure 1 of this PWS). The SWAT modeling efforts will characterize phosphorus and sediment inputs to surface waters in northeastern Wisconsin for purposes of TMDL development. The Contractor shall be expected to provide to WDNR the pollutant loading SWAT modeling results and nonpoint source pollutant loading analysis as part of its overall responsibilities under this TO.

WDNR will use the results of the Contractor supported SWAT modeling efforts to complete additional TMDL developmental activities in the NE Lakeshore area outside of this TO. This TO is solely to assist WDNR to develop, calibrate, validate and run a SWAT model(s). Upon completion of the technical SWAT modeling work, the Contractor shall write a final SWAT Modeling Report which will document the model development, nonpoint source pollutant loading analysis, and the SWAT calibration and validation processes which were performed in this TO. WDNR anticipates that this final SWAT Modeling Report will serve as an Appendix for the final NE Lakeshore TMDL Report to be developed at some time in the future by WDNR. Additionally, WDNR expects that the SWAT modeling efforts toward characterizing nonpoint sources completed in this TO will be used by stakeholders to inform watershed based planning efforts (i.e., 9-Element Watershed Management Plans), specifically to inform reduction goals for nonpoint sources in the NE Lakeshore area.

It is expected that all work and requested deliverables will be completed within the period of performance which starts on the date in which the TO is awarded and concludes on September 30, 2020.

TASK 1: KICKOFF PHONE CALL

The Contractor shall arrange a kick-off call (approx. 60-90 minutes) with EPA and WDNR to review overall goals of the project and details regarding implementation of the TO. The kickoff call shall be scheduled within five business days of the TO award or at an alternate date as agreed upon by the EPA Task Order Contract Officer Representative (TOCOR), EPA Technical Lead, the WDNR project manager and the Contractor. The call shall be scheduled at a mutually agreed upon time based on the availability of the EPA TOCOR, EPA Technical Lead, the WDNR project manager and the Contractor. During the kickoff phone call EPA, WDNR and the Contractor will discuss: roles and responsibilities for completing each phase of the TO, tasks within the TO, the goals/deliverables of the TO, quality assurance procedures of the TO, existing water quality data, and review the schedule of benchmarks, deliverables and milestones described in the PWS.

TASK 2: MONTHLY WORK GROUP CONFERENCE CALLS

The Contractor shall plan to participate in regular phone consultation with EPA and WDNR not fewer than once every month for the duration of the TO. The Contractor should anticipate having 1-2 calls per month lasting 1-2 hours per call. These monthly work group conference calls shall be scheduled at a mutually agreed upon day and time by EPA, WDNR and the Contractor. The main purpose of these monthly calls will be for all parties to have a designated time once a month to update each other on project progress. Additional conference calls shall be scheduled as needed. The Contractor shall be the note taker for these phone consultations and will provide meeting notes for each monthly conference call in electronic mail (i.e., E-mail) format to project participants at EPA and WDNR.

The Contractor may need to communicate with stakeholders and other entities of local, state and federal government to collect the necessary data and information to complete the tasks in this PWS. For communications that occur outside of the presence of the EPA TOCOR, the Contractor shall clearly identify to the EPA TOCOR, either through an electronic mail or as a resource in a deliverable, when and with whom such technical communications were held. Should any controversial or argumentative issue arise during such communications, the EPA TOCOR shall be notified at the earliest opportunity, but no later than 5 days after the issue has been raised. The Contractor at no time shall take any technical direction from anyone other than the EPA TOCOR.

TASK 3: MONTHLY PROGRESS REPORTS

The Contractor shall write and submit monthly progress reports to the EPA TOCOR. Progress reports shall describe completed work during the invoice period and should link to charges described in invoice documentation. The monthly progress reports shall provide the following information:

- Contract and TO number, reporting period, and contact information: This information serves as heading to the monthly progress report;
- Progress made during the report period: Activities completed toward completion of deliverables, including those regarding quality assurance;
- Deliverables: Schedule showing completed and upcoming deliverables;
- Projected activity for the next reporting period: Activities to be completed toward completion of deliverables; and
- Project issues: Impediments encountered, and budget/financial status (e.g., amount billed to date per task and amount remaining per task).

Failure to submit monthly progress reports with the information required will result in the suspension of the invoice until such supporting documentation is provided. The EPA TOCOR may also initiate verbal communications with the Contractor on an as needed basis to determine project status. The Contractor shall provide the EPA TOCOR and the Contracting Officer (CO)/Contracting Specialist (CS) with monthly progress reports via e-mail until the completion of the project. The EPA TOCOR's e-mail address is: proto.paul@epa.gov

TASK 4: QUALITY ASSURANCE PROJECT PLAN (QAPP) DEVELOPMENT

Development of the modeling will rely on existing water quality data (i.e., WDNR is currently collecting water quality data in the watershed) and studies. The Contractor shall not collect new water quality samples under this TO. The Contractor shall develop a Quality Assurance Project Plan (QAPP) which shall address how the Contractor shall ensure quality in their evaluation of secondary data sources necessary to develop the modeling, such as evaluations of existing water quality and flow data, pollutant loading model results, and analyses of pollutant sources. The QAPP shall identify specific quality aspects/features involved in the model development/application that will be used to complete this TO.

EPA policy requires that an *approved* QAPP be in place before any work begins that involves the collection/gathering, generation, evaluation, analysis or use of environmental data. The work to be performed by the Contractor under this TO involves such activities; therefore, in order to comply with this requirement:

- Within 45 days after the kickoff call the Contractor shall prepare and submit, for EPA and WDNR review, a draft QAPP documenting how quality assurance (QA) and quality control (QC) shall be applied to the collection/gathering, generation, evaluation, analysis and use of environmental data.

- EPA and WDNR will review the Contractor's draft QAPP within 10 days upon receipt of the draft QAPP, and provide the Contractor with written comments or written approval.
- The Contractor shall submit a revised draft QAPP version(s) within 15 days of receipt of the written comments on the draft QAPP, unless otherwise instructed by the EPA TOCOR.
- EPA and WDNR will review the Contractor's revised draft QAPP version(s) within 10 days upon receipt of the revised draft QAPP, and provide the Contractor with written approval or written comments.
- **The QAPP document will only be considered to be the final QAPP deliverable when no further modification of text, tables or figures are needed, and all parties have signed/approved the document.**
- The Contractor shall write the QAPP using the active voice. The QAPP shall provide enough detail to clearly describe objectives of the project supported by the TO; the type of data to be gathered, generated, or used under this TO to support the project objectives; the quality objectives needed to ensure that these shall support the project objectives; and the quality assurance and quality control activities to be performed to ensure that any results obtained are documented and are of the type, quality, transparency, and reproducibility needed.
- The QAPP must be consistent with the guidance documents, *EPA Requirements for Quality Assurance Project Plans: EPA QA/R-5*, and *"Guidance for Quality Assurance Project Plans for Modeling (QA/G-5M).* (http://www.epa.gov/quality/qs-docs/r5-final.pdf**)**.
- **Under no circumstances shall work that involves the collection/gathering, generation, evaluation, analysis, or use of environmental data be performed until the Contractor receives written notification from the EPA TOCOR that EPA has approved the Contractor's QAPP.**
- Any non-sampling/non-analytical work that involves the generation, collection/gathering, evaluation, analysis, or use of environmental data that is initiated prior to EPA approval of the Contractor's QAPP shall be performed in accordance with the approved QAPP. EPA may request the Contractor to furnish written documentation from the Contractor showing that the Contractor has complied with this requirement.
- All QA documentation, including the QAPP, prepared under this TO, shall be considered non-proprietary, and shall be made available to the public upon request.

Additional QA Documentation Required

In addition to the QAPP requirements described above, all major deliverables (e.g., Technical Support Documents, Study Reports, Study Plans, etc.) produced by the Contractor under this TO must include a discussion of the QA/QC activities that were or shall be performed to support the deliverable.

The Contractor shall immediately notify the EPA TOCOR of any QA problems encountered that may impact the performance of this Task Order, with recommendations for corrective action.

The Contractor also shall provide EPA with monthly reports of QA-related activities performed during implementation of this TO. These monthly QA reports shall identify QA activities performed to support implementation of this task order, problems encountered, deviations from the QAPP, and corrective actions taken. The Contractor shall include this as a part of the contract-required monthly financial/technical progress report.

Deliverables and schedule for QA Tasks:

- The Contractor shall prepare and submit for EPA review a preliminary draft QAPP documenting how QA/QC shall be applied to the generation, collection, evaluation, analysis and use of environmental data.

- The Contractor shall provide a revised draft QAPP, and incorporate EPA comments into revisions.
- The Contractor shall notify the EPA TOCOR at any time during the task order if changes to the QAPPs are warranted (e.g., due to organizational changes, revised technical approaches).
- If, during the Period of Performance of this TO, the EPA TOCOR provides technical direction that revisions to the QAPP are determined to be necessary, the Contractor shall submit a revised QAPP, including the revision summary, within 30 business days after receiving written technical direction to do so. When preparing this "draft" revised version of the QAPP, the Contractor shall ensure that it is written in an active voice and shall include a version history page that summarizes changes made. The Contractor also shall provide EPA with copies of any modified SOPs or checklists. EPA will review the "draft" revised QAPP and provide the Contractor with written approval or comments. The Contractor shall provide a final QAPP that responds to EPA's written comments within 30 business days of receipt of EPA's comments on the draft QAPP. No work under the revised QAPP shall be conducted until the TOCOR advises in writing that EPA has accepted the revised QAPP

Reporting Requirements:
The Contractor shall include a QA/QC section within each major deliverable (as specified above). The Contractor shall provide monthly reports of QA activities performed during implementation of this task order (as specified above).

There may be several iterations of the final QAPP document that EPA considers to be 'pre-final'. EPA defines the final QAPP deliverable as the draft that requires no further modification of text, tables or figures. The Contractor shall furnish all deliverables to the EPA TOCOR in an electronic format that EPA and WDNR can support (MS Word). The final QAPP shall be completed within 30 calendar days after the submittal of the revised draft QAPP to EPA and WDNR.

DELIVERABLES FOR TASK 4:
4.1: Draft QAPP
4.2: Final QAPP

TASK 5: SWAT – DATA ANALYSIS AND MODEL PREPARATION

SWAT Model
The SWAT model is a public domain model jointly developed by the United States Department of Agriculture Agricultural Research Service (USDA-ARS) and Texas A&M University which is designed to simulate the impact of land use, land management practices and climate change on surface and groundwater quality and quantity.[1] SWAT is a process-based model which simulates key hydrologic and water quality processes (e.g., surface water runoff, evapotranspiration, erosion, groundwater discharge etc.). The SWAT model is spatially distributed which allows parameters which affect hydrologic flow and water chemistry/water quality the ability to vary throughout a modeled watershed.

SWAT has been utilized to assess nonpoint source inputs for TMDL development in previously completed WDNR TMDL efforts.[2] Some of the advantages of employing SWAT modeling to

[1] SWAT webpage, https://swat.tamu.edu/
[2] Examples: Upper Fox-Wolf Basins TMDL (2018), Lower Fox River Basin and Lower Green Bay TMDL (2012) https://dnr.wi.gov/topic/TMDLs/documents/lowerfox/LowerFoxRiverTMDLReport2012.pdf

characterize nonpoint source watershed inputs include its ability to simulate environmental variables (e.g., streamflow, pollutant concentrations) at varying levels of spatial and temporal resolutions. SWAT is commonly used to model hydrologic and hydrochemical behaviors in agricultural watersheds, with variable agricultural practices in the upper Midwest. The SWAT model for this TO is anticipated to incorporate information on land cover, soils, slope, and land management practices in the watershed to provide daily predictions of pollutant loads (e.g., phosphorus and sediment loads) from nonpoint sources and estimate water volumes/average streamflow to guide TMDL analysis.

Other SWAT modeling efforts in Wisconsin

WDNR is currently developing a TMDL which employ SWAT modeling to characterize nonpoint source contributions (e.g., the Upper Fox-Wolf Basins TMDL[3]). WDNR anticipates that the efforts to develop the NE Lakeshore TMDLs may mimic the TMDL development efforts of the Upper Fox-Wolf Basins (UFWB) TMDLs, including gleaning relevant information from the UFWB SWAT efforts to help inform the SWAT model set up for the NE Lakeshore TMDLs. The UFWB is the watershed immediately west of the central part of the NE Lakeshore watershed and EPA and WDNR anticipate that lessons learned from the UFWB SWAT model could be useful to establish some of the NE Lakeshore SWAT modeling efforts. EPA and WDNR will share relevant UFWB SWAT modeling and report files with the Contractor prior to the start of NE Lakeshore SWAT modeling efforts.

Water quality and agricultural data

EPA and WDNR will facilitate in the transfer of relevant federal and state water quality data (e.g., state ambient water quality measurements) and local agricultural data to the Contractor prior to the start of SWAT modeling efforts in the NE Lakeshore area. The Contractor will not be collecting any of the WQ or AG data. The state will be transferring the data to the Contractor. Typically, a data set of this type would include spreadsheets of WQ data, NPDES facility information, GIS mapping data (shape files and other supporting meta-data to inform GIS analyses), watershed specific data (i.e., land use information, population information, etc.), animal count information (AG data).

TASK 5A: SWAT WATERSHED DELINEATION

The SWAT model typically represents a basin as a collection of subwatersheds and Hydrologic Response Units (HRUs). Each HRU is a land area with a unique land use-soil-slope combination. The Contractor shall complete a subwatershed delineation exercise which subdivides the subwatersheds in Figure 1 of the PWS into smaller drainage units (e.g., HUC-12 or smaller scale). This delineation exercise should reflect actual drainage patters and accurately map surficial flowpaths/routing and the subwatershed outlet/pour point.

Upon completion of the initial subwatershed delineation exercise, the Contractor shall further characterize the small drainage units by completing a finer scale analysis of land use, soil attributes, slope, land management (i.e., agricultural practices), municipal boundaries (e.g., MS4 boundaries and non-MS4 boundaries) etc. and classify via HRUs.

The Contractor shall also incorporate other modeling inputs such as:

- Daily precipitation data;
- Daily air temperature data;
- Other climatic information (e.g., wind speed, relative humidity, etc.);

[3] WDNR website, https://dnr.wi.gov/topic/tmdls/foxwolf/index.html

- Point source input information (flow and loading information based on discharge monitoring records (DMR), annual average effluent flows, pollutant loads, etc.) and
- Other inputs.

TASK 5B: SWAT – CALIBRATION AND VALIDATION

The model calibration/validation is a critical step in ensuring the SWAT model will properly simulate the hydrologic conditions of the Northeastern Lakeshore area. Without adequate calibration/validation, the results of any model cannot be relied upon. Calibration of the model may require the Contractor to perform parameter adjustments within the range of expected variances. The Contactor shall base the calibration and validation on available historical data (i.e., 2 years for calibration and 2 years for validation). The Contractor shall discuss in advance with EPA and WDNR technical team about any proposed deviation from the intended calibration/validation approach.

The Contractor shall complete a SWAT model calibration exercise which will include successive runs of the SWAT model by adjusting calibration parameters until the SWAT modeling results agree with observed data. Calibration may include a goodness-of-fit exercise and or a sensitivity analysis to adjust modeling parameters to maximize a goodness-of-fit between the modeling results and the observed data.

After model calibration is completed, the Contractor shall validate the model by using additional observed data sets to confirm that the model can be used to simulate hydrologic conditions of the Northeastern Lakeshore area and be applicable to other conditions in this area. The Contractor shall use two evaluation criteria to assess model results simulated by the SWAT model. The first criteria shall be visual comparison of plots of modeled and observed values. The second criteria shall be error statistics that quantitatively measure the agreement between modeled and observed values. Coefficient of determination (R^2), Nash-Sutcliffe efficiency (NSE), Percent error (PBIAS), and the ratio of the root mean square error (RMSE) to observations, and standard deviation (RSR) may be used as evaluators of model performance. The WDNR shall work with the Contractor to determine a threshold of acceptable values for error statistics prior to initiation of this task.

The Contractor shall use the SWAT model to determine the magnitude of the daily pollutant load reduction of total phosphorus needed to achieve Wisconsin WQS for nutrients (TP) and sediment (TSS). The Contractor shall discuss in advance with EPA and WDNR technical team about any proposed deviation from the intended model setup.

DELIVERABLE FOR TASK 5:

5: A SWAT Model for the NE Lakeshore Area – (includes the components of Tasks 5A and 5B)

TASK 6: MODELING FINAL REPORT

The Contractor shall prepare a final report documenting the model development and calibration process that was performed in Tasks 5A and 5B of this TO. The report shall include discussion of:

- Model setup;
- Data which was used in the SWAT model (e.g., streamflow data, water quality data, agricultural data, etc.);
- Subwatershed delineation;
- Parameters which factored into HRUs characterization (e.g., soils, slope, etc.);
- Simulation period;
- Calibration approach;

- Validation approach;
- Calibration and validation results and
- Use of SWAT model to characterize pollutants in the Northeastern Lakeshore area.

WDNR anticipates that this final SWAT Modeling Report will serve as an Appendix for the final NE Lakeshore TMDL Report to be developed at some time in the future by WDNR.

DELIVERABLES FOR <u>TASK 6</u>:
6.1: Modeling Final Report, Draft
6.2: Modeling Final Report, Final

E. DELIVERABLES SCHEDULE TIMELINE

Section and Task #	BENCHMARK, DELIVERABLE or MILESTONE	SCHEDULE
D - 1	Kickoff Phone Call	Within 5 business days of the Task Order award.
D- 2	Contractor participates in Monthly Work Group Conference Calls	Monthly Work Group calls shall begin the first month after the kickoff call and occur at a minimum of once a month.
D - 3	Contractor prepares Monthly Progress Reports	Monthly progress reports shall be submitted to TOCOR within three (3) calendar days of invoice submission to EPA.
D - 4	**QAPP Development:** Contractor develops preliminary draft QAPP and furnishes to TOCOR for review and comment by TOCOR and EPA QA Officer.	Within 45 calendar days after the kickoff call or an alternate date as agreed upon by EPA, WDNR, and Contractor.
	QAPP Development: Contractor develops revised draft QAPP after receiving written comments from TOCOR.	Within 30 calendar days after the receipt of comments on the preliminary draft QAPP from TOCOR or an alternate date as agreed upon by EPA, WDNR, and Contractor.
	QAPP Development: Contractor develops final draft QAPP after receiving written comments from TOCOR.	Within 30 calendar days after the receipt of comments on the revised draft QAPP from TOCOR or an alternate date as agreed upon by EPA, WDNR, and Contractor.
D - 5	**SWAT Model Development:** Data analysis, model preparation, watershed delineation, calibration and validation.	Within 120 calendar days of the finalized QAPP (i.e., the final signed QAPP by all EPA, WDNR and the Contractor) or an alternative date as agreed upon by EPA, WDNR, and Contractor.
D - 6	**SWAT Modeling Report development:** Contractor develops preliminary draft SWAT Modeling Report and furnishes to TOCOR for review and comment by TOCOR and WDNR.	Due on a date no later than 180 calendar days after the finalized QAPP or an alternative date agreed upon by EPA, WDNR, and Contractor.
	SWAT Modeling Report development: Contractor develops final draft of the SWAT Modeling Report after receiving comments from TOCOR and WDNR.	Final draft SWAT Modeling Report due on a date no later than 60 days after comments received on the Draft SWAT Modeling Report or an alternative date agreed upon by EPA, WDNR, and Contractor.
I	Contractor completes validation of task order deliverables for Section 508 compliance.	Within 10 calendar days after receipt of EPA acceptance of final drafts through written technical direction from TOCOR.

1. For each deliverable submitted electronically, the Contractor shall submit electronic copies to the EPA TOCOR, and project manager from WDNR in a format that EPA and WDNR can support. Deliverables shall be submitted through electronic mail, or through another method determined mutually acceptable by the Contractor, EPA and WDNR.

2. It is anticipated that each deliverable will be submitted in a draft form unless otherwise noted in this PWS. EPA, in consultation with WDNR, will review the draft deliverables and provide comments. The Contractor shall respond to these comments within seven (7) business days unless otherwise specified in this PWS or otherwise directed by the EPA TOCOR. Initial response to comments can be through electronic mail. Deliverables shall be revised upon direction from the

EPA TOCOR within a time frame mutually agreed upon by EPA, WDNR and the Contractor, but within at least three (3) work days and no more than 30 work days. EPA, in consultation with WDNR, will determine whether a deliverable is in an approvable and/or acceptable form. The EPA's determination will be based on the Contractor's clarifications and/or revisions, including any necessary re-submittals. Written direction from the EPA TOCOR can be through E-mail.

3. Presentations and handouts for meetings shall be submitted to the EPA TOCOR and the project manager from WDNR, at least ten (10) business days before the scheduled date of meeting(s). Revisions to the presentations and handouts shall be made in accordance with comments received from EPA and WDNR. Revised presentations and handouts shall be submitted within three (3) business days of the request by EPA for revisions or mutually agreed upon date by EPA, WDNR and the Contractor.

4. At the completion of the period of performance, or as requested throughout, the Contractor shall provide electronic copies of all project files to the EPA TOCOR on CD-ROM or DVD format.

F. REPORTING

All documentation and reporting under this TO shall comply with contract requirements. Reference Contract Clause C-1 (c) and Attachment 1, PWS, Section 2.5.3.4, 3.7, and 4.3.7. See contract clause F.2, F.3, and J.2 "List of Attachments, Number 2 - Reports of Work".

G. TRAVEL

All travel under this TO shall comply with contract requirements and only according to specific technical direction. See contract clause H.17.

H. CONTRACTOR IDENTIFICATION

Contractor personnel shall always identify themselves as Contractor employees by name and organization and physically display that information through an identification badge. Contractor personnel are prohibited from acting as the Agency's official representative.

Any questions raised by the public regarding EPA policy should be responded to by EPA representatives, not Contractor personnel. If EPA is not available to respond, the Contractor shall provide the public with an appropriate agency contact.

I. VALIDATION OF TASK ORDER DELIVERABLES FOR SECTION 508 COMPLIANCE

The Contractor shall support the TOCOR in conducting a "Final Deliverable Validation" to ensure compliance with Section 508 and the Federal Acquisition Regulations (FAR) related to "electronic and information technology (EIT) deliverables". The Contractor shall furnish certification, in writing, to the TOCOR that the Contractor has complied with EPAAR Clause 1552.211-79 "Compliance with EPA Policies for Information Resources Management" (Reference Contract Clause C-1), including the requirement that all electronic and information technology (EIT) deliverables be Section 508 compliant in accordance with the policies referenced at http://www.epa.gov/accessibility/ Reference Contract Clause C-1 (c) and Attachment 1, Statement of Work (SOW), Section 2.5.3.4, 3.7, and 4.3.7.

J. NOTIFICATION OF COMPLETION OF TO DELIVERABLES

In the event that the TO reaches thirty (30) days prior to the end of the Period of Performance and the Contractor assesses that the deliverables, benchmarks or milestones will not be able to be completed, the Contractor shall immediately furnish written notification to the EPA TOCOR and the CO/CS.

K. SUPPORTING DOCUMENTS AND GUIDANCE

- *EPA Requirements for Quality Assurance Project Plans (QA/R-5).* EPA/240/B-01/003. May 2006. (http://www.epa.gov/quality/qs-docs/r5-final.pdf)
- *"EPA Handbook for Developing Watershed Plans to Restore and Protect Our Waters,"* EPA 841-B-08-002, March 2008. (*http://water.epa.gov/polwaste/nps/handbook_index.cfm)*
- *Data Quality Assessment: A Reviewer's Guide (QA-G-9R).* EPA/240/B-06/002. February 2006. (http://www.epa.gov/QUALITY/qs-docs/g9r-final.pdf)
- *"Guidance for Quality Assurance Project Plans for Modeling (QA/G-5M).* EPA/240/R-02/007. December 2002. (http://www.epa.gov/quality/qs-docs/g5m-final.pdf)
- *Data Quality Assessment: Statistical Tools for Practitioners (QA/G-9S).* EPA/240/B-06/003. February 2006. (http://www.epa.gov/quality/qs-docs/g9s-final.pdf)
- For more information on data quality guidance, visit EPA's website at www.epa.gov/quality/.
- *Guidance on Water-Quality-Based Decisions: The TMDL Process.* EPA440-4-91-001. April 1991. (http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/decisions_index.cfm)

CONTRACTING OFFICER
Angela Lower
U.S. EPA
26 West Martin Luther King Drive, W122A
Cincinnati, Ohio 45268
Phone: 513-487-2036
Fax: 513-487-2545
E-mail: lower.angela@epa.gov

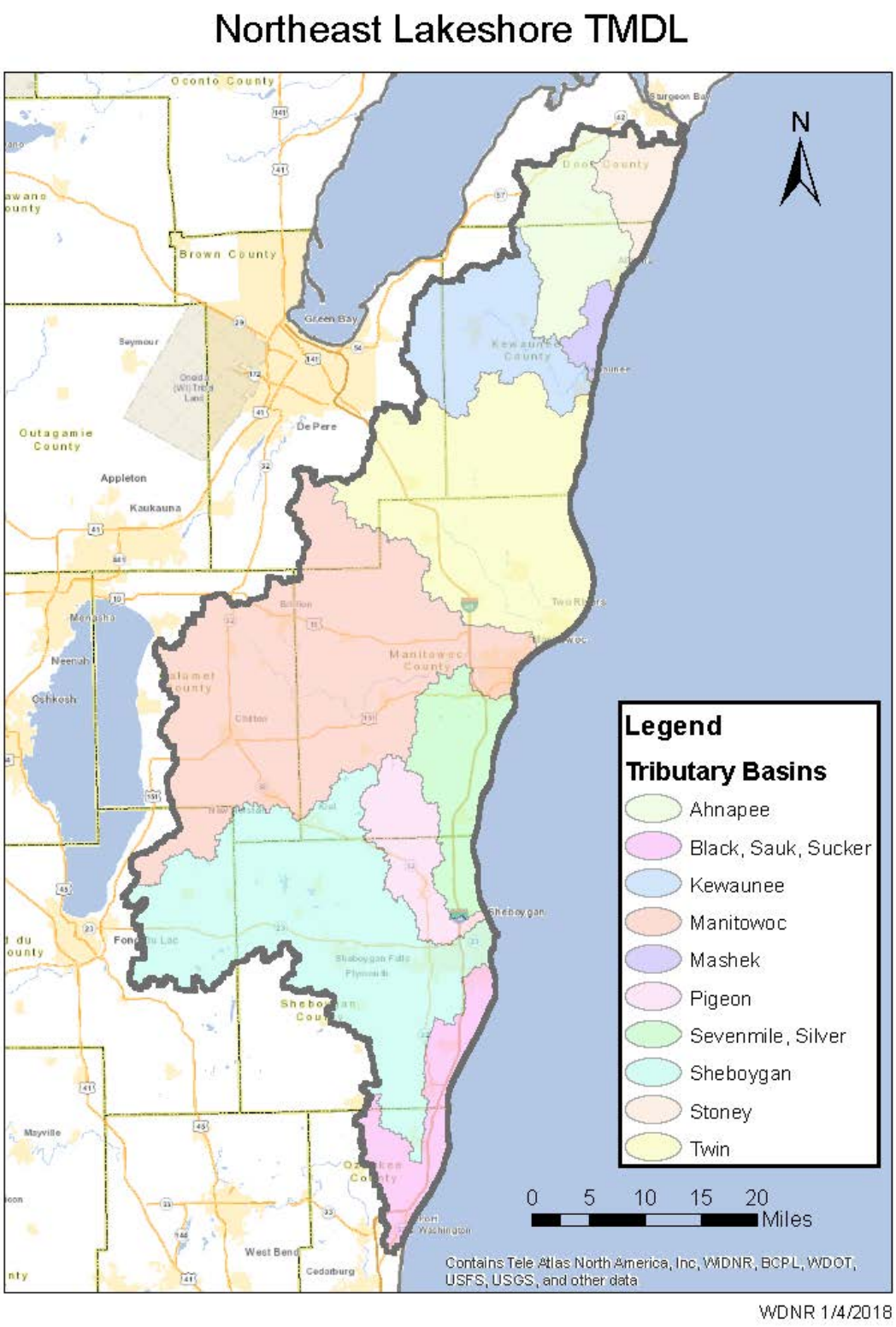
CONTRACT SPECIALIST
Lisa Mitchell-Flinn
U.S. EPA
26 West Martin Luther King Drive, W121B
Cincinnati, Ohio 45268
Phone: 513-487-2852
Fax: 513-487-2545
E-mail: mitchell-flinn.lisa@epa.gov

TASK ORDER CONTRACT OFFICER REPRESENTATIVE (TOCOR):
Paul Proto
U.S. EPA, Region 5
Watersheds and Wetlands Branch, WW-16J
77 West Jackson Blvd., Chicago, IL 60604
Phone: 312-353-8657
Fax: 312-697-2713
E-mail: proto.paul@epa.gov

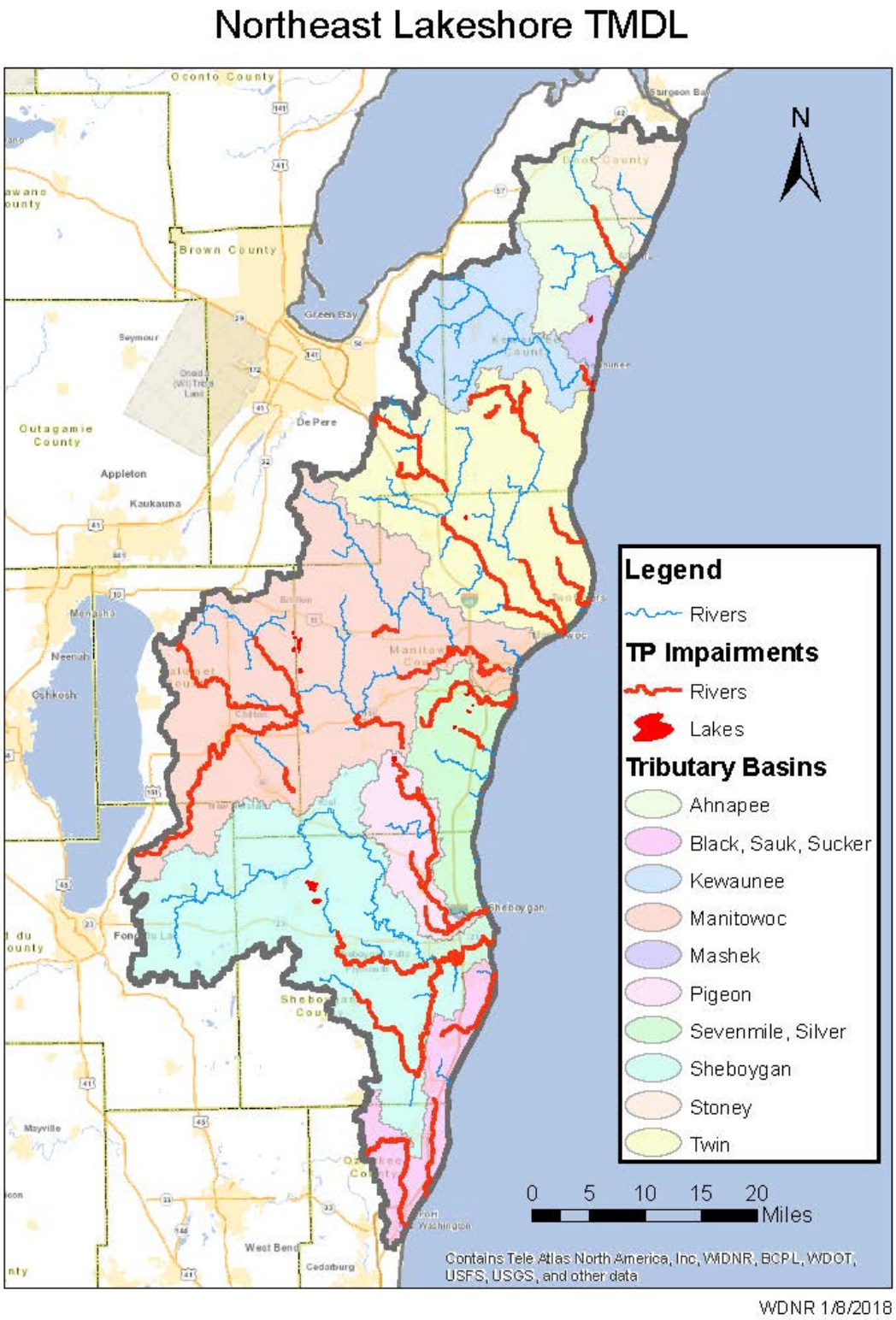
ALTERNATE TASK ORDER CONTRACT OFFICER REPRESENTATIVE (ALT-TOCOR):
Donna Keclik
U.S. EPA, Region 5
Watersheds and Wetlands Branch, WW-16J
77 West Jackson Blvd., Chicago, IL 60604
Phone: 312-886-6766
Fax: 312-692-2999
E-mail: keclik.donna@epa.gov

TECHNICAL LEAD
James Ruppel
U.S. EPA, Region 5
Watersheds and Wetlands Branch, WW-16J
77 West Jackson Blvd., Chicago, IL 60604
Phone: 312-886-1823
E-mail: ruppel.james@epa.gov

<u>Figure 1:</u> Spatial Extent of WDNR's Northeast Lakeshore TMDL (WI)



<u>Figure 2:</u> Total Phosphorus impaired segments in the Northeast Lakeshore TMDL (WI)



EPA-F-12-101 PERIOD OF PERFORMANCE

The period of performance of this contract shall be from **TBD** through **TBD** inclusive of all required reports.

LOCAL CLAUSE EPA-G-42-101 CONTRACT ADMINISTRATION REPRESENTATIVES

Task Order Contracting Officers Representatives (CORs)/Project Officers for this contract are as follows:

Task Order COR (TOCOR): Paul Proto, proto.paul@epa.gov PH (312)-353-8657

Alternate Task Order COR (Alt TOCOR): Donna Keclik, keclik.donna@epa.gov PH (312)-886-6766

Contracting Officials responsible for administering this contract are as follows:

Contracting Officer

Angela Lower, US EPA. Cincinnati Procurement Operations Division, 26 W MLK Dr MS W136A, Cincinnati, Ohio 45268 lower.angela@epa.gov

Contracts Specialist

Lisa Mitchell-Flinn, US EPA. Cincinnati Procurement Operations Division, 26 W MLK Dr MS W136A, Cincinnati, Ohio 45268 lower.angela@epa.gov

TASK ORDER SOLICITATION TECHNICAL EVALUATION

PR-R5-18-00467

Soil and Water Assessment Tool (SWAT) Modeling for the Northeast Lakeshore TMDL

Contractors shall limit their responses to 15 pages (single sided) or less (not including attachments, such as resumes, commitment letters, page dividers and cover letter). Any information on pages beyond the page number limitation will not be considered or evaluated. The technical proposal shall be submitted using no less than ten (10) point font size and no less than a 3/4" margin on all sides of the page. The term "Offeror" as used in this document shall mean the prime contractor and any proposed subcontractors or consultants.

Proposals will be evaluated on the factors listed below by the project Technical Evaluation Team and will be assigned a score from 0-3 using the scale listed below. Award will be based on Best Value Trade-off basis where Technical Quality is equally important as Cost.

RATING SCALE

The following rating scale will be used in scoring proposals:

Unacceptable = 0. Criteria is not addressed.

Poor = 1. The proposal fails to adequately address critical requirements of the PWS and technical evaluation criteria; may satisfy some requirements, but not others; reflects major weaknesses or deficiencies. Could not meet requirements without fundamental changes involving a total re-write or redirection of the offer.

Satisfactory = 2. Proposal addresses and meets most requirements of the PWS and technical evaluation criteria, with some correctable and minor weaknesses and/or deficiencies noted. Is generally considered to demonstrate at least minimum requisite experience, qualifications and performance capabilities. Some discussions may be required to address and correct weaknesses or deficiencies.

Superior = 3. The proposal clearly addresses and exceeds requirements of the SOW and technical evaluation criteria with no weaknesses or deficiencies, or very minor, correctable weaknesses or deficiencies noted.

Each point is worth 1/3 of the weight assigned to an individual factor. For example, if a 'Satisfactory' rating (2) is awarded for a factor with 50 points, a total of 50*0.66 or 33 points will be assigned.

CRITERIA

The following criteria and weights will be used in the technical evaluation of Task Order proposals:

Criterion: Factor #1 - Technical Approach (50 Points)

This criterion will evaluate the Contractor's technical approach for the development and performance of the tasks requested in the PWS. The Contractor shall demonstrate an understanding of the work to be performed and demonstrate the appropriate knowledge and ability (availability of appropriate staff, equipment, and resources) to complete the tasks on time. The Contractor shall present a sound understanding of typical problems encountered in performing services required by the PWS and the ability to present practical, efficient solutions

for those problems. The Contractor's proposal shall include a clear, concise narrative that discusses how the Contractor will address the main tasks of the PWS, which are;

- The development of a Quality Assurance Project Plan (QAPP) to ensure quality in their evaluation of secondary data sources necessary to employ said data into SWAT modeling efforts, such as evaluations of existing water quality and flow data, and desktop analyses of pollutant sources *(see Task 4 of the PWS)*;
- SWAT model development – data analysis, model preparation, watershed delineation, calibration of the SWAT model and validation of the SWAT model *(see Task 5 of the PWS)* and
- The development of a detailed SWAT Modeling Report *(see Task 6 of the PWS)*.

Factor 2: Statement of Success with Similar Projects (25 Points)

The Contractor's proposal should describe the successful completion of project efforts (e.g., contract work, instances where the Contractor acted as a subcontractor, etc.) which are similar to the tasks requested in the PWS within the past five (5) years and/or those project efforts that are currently ongoing. Offerors shall provide a brief description of each project effort or contract, whether subcontractors were employed in the project effort, a description of the objectives of the project effort, the dollar value, relevance to the task order PWS, type of contract, the date work was performed, and client contact information including name, address, point of contact, and telephone and/or email. The Contractor's proposal may provide information on problems encountered on the identified contracts and the offeror's corrective actions.

Factor 3: Critical Staffing and Demonstrated Skills (25 Points)

The Contractor shall identify the proposed staff that will work under this Task Order, including their technical background and experience, what role they will fill in this Task Order, the level of involvement in the Task Order, their familiarity and experience working with the SWAT Model, previous experience in developing TMDLs for the State of Wisconsin, previous experience in using the SWAT Model to support TMDLs (either in Wisconsin or other states (i.e., R5 states and/or non-R5 state), and how they will provide the most crucial skills needed to support PWS projects from start to finish. Please link proposed staff directly to projects described under Factor #2. Resumes maybe be submitted for each proposed staff and will not be counted towards the overall proposal page count.

1. Task Order Project Manager: (no more than one proposed Task Order Project Manager)
    - Demonstrated Experience working with the SWAT Model and experience using SWAT in support of TMDL development efforts,
    - Demonstrated Experience working on watershed scale project efforts and demonstrated understanding of nutrient and sediment challenges in Wisconsin and other Great Lake nearshore project areas;
    - Demonstrated Experience collaborating with Wisconsin Department of Natural Resources (WDNR) on TMDL development project efforts; and
    - Demonstrated Experience in developing Quality Assurance Project Plans (QAPPs).

2. Task Order Technical Advisor(s): (no more than three proposed Technical Advisors)
    - Demonstrated Experience working with the SWAT Model and experience using SWAT in support of TMDL development efforts,

- Demonstrated Experience working on watershed scale project efforts and demonstrated understanding of nutrient and sediment challenges in Wisconsin and other Great Lake nearshore project areas;
- Demonstrated Experience collaborating with WDNR on TMDL development project efforts; and
- Demonstrated Experience developing nutrient and sediment TMDLs and QAPPs.

3. Task Order Technical Monitor(s): (no more than two Technical Monitors)
    - Demonstrated Experience as Quality Assurance/Quality Control (QA/QC) Officer on modeling based project efforts; and
    - Demonstrated Understanding of EPA QAPP Guidance, QAPP requirements and QAPP documentation.

EPA expects the Contractor to identify one member of their staff who will act as the Task Order Project Manager, no more than three staff members to act as Task Order Technical Advisors and no more than two staff members to act as Task Order Technical Monitors. EPA expects the Contractor to name no more than six members of its staff who would participate in this Task Order.

The information provided by the Contractor under Factor #3 should clearly describe the individual's past experience in performing similar projects to those anticipated under this Task Order, specific role(s) and responsibilities held by the proposed individual in projects cited, length of time the individual held that role, goals met and achievements of the individual in the role, and availability for effort on work anticipated herein. EPA expects the Contractor to describe how specific individuals will meet the tasks described in the PWS.